

well known. The rich and interesting Museo Civico di Storia Naturale, of Genoa, amongst its many rarities, contains a magnificent specimen of the *Lophiomys*, mounted skin and skeleton, which specimen was caught at Keren in the Bogos land, in June, 1870, and forms part of the fine collections made at that place by Dr. Beccari and Marquis Antinori. The native name of the *Lophiomys*, according to Antinori, is *Tzechisa*.

The reviewer cites M. Alphonse Milne-Edwards's impression of the resemblance of *Lophiomys* to certain opossums, a point in which I cannot completely agree; my impression is that this very remarkable rodent offers one of the best cases of "defensive mimicry," being strangely like a Viverrine carnivore in outward appearance. The granulation of the upper portion of the skull, which extends to the upper surface of the first cervical vertebra, is very peculiar; but it is not strictly correct to assert that nothing of the kind is met with in other mammals; in the very same order, Rodentia, we find a very similar structure in the cranium of the Paca (*Calomys*), and I believe some allied forms.

HENRY HILLYER GIGLIOLI

Reale Istituto, Florence, December 17, 1879

#### On *Haloporphyrus lepidion* (Risso)

I HAVE recently had occasion to examine two specimens of this rare and remarkable gadoid fish of the Mediterranean, originally described as *Gadus lepidion* by Risso ("Ichthyologie de Nice," p. 118). The first was captured in my presence in the Gulf of Genoa, in July last, from a depth of about 900 metres, the second I received from Nice, where it was captured in deep waters on September 1 last, and I know of a third specimen taken at the latter place. All agree perfectly with Risso's description except in the general colour, a light brown, and not "*un beau rouge carnal*," while Risso appears to have overlooked the presence of a small patch of vomerine teeth. But our Mediterranean specimens present notable differences from that described by Dr. Günther ("Catalogue of Fishes," iv. p. 358), and referred by him to this species; besides being considerably larger, the British Museum specimen, which is from Madeira, has a much smaller eye and much longer snout and barbel. Such differences might depend on age, but I am strongly inclined to consider them specific, and therefore beg to draw the attention of ichthyologists to the case; should my opinion prove correct, the Madeiran fish might go by the name of *Haloporphyrus guntheri*.

While rapidly completing the rich series of fishes belonging to the central collection of Italian vertebrata, formed by me in the Florence Zoological Museum, I have recently been able to add thereto a second very rare gadoid, the *Physiculus dalwigki*, Kaup, a new acquisition to the Mediterranean fauna. My specimen was captured at Nice on August 4 last, and strange to say was sent to me as *Uraleptus maraldi*.

Reale Istituto, Florence HENRY HILLYER GIGLIOLI

#### Edison's New Lamp

I OBSERVE in NATURE, vol. xxi. p. 187, a statement to the effect that Mr. Edison has adopted the use of carbon in his new electric lamp, and that the carbon he uses is charred paper or card of the shape of a horse-shoe.

Fifteen years ago I used charred paper and card in the construction of an electric lamp on the incandescent principle. I used it, too, of the shape of a horse-shoe, precisely as, you say, Mr. Edison is now using it. I did not then succeed in obtaining the durability which I was in search of, but I have since made many experiments on the subject, and within the last six months I have, I believe, completely conquered the difficulty which led to previous failure, and I am now able to produce a perfectly durable electric lamp by means of incandescent carbon.

JOSEPH W. SWAN

Underhill, Low Fell, Gateshead, December 29, 1879

#### Flow of Viscous Materials

MR. BOTTOMLEY, in his paper on this subject in NATURE, vol. xxi. p. 159, refers to experiments made four years ago, but if he refers to the *Philosophical Magazine*, vol. xxvi. 206, 1845, he will find a notice of an experiment made twenty-four years ago. It occurred thus:—A barrel of pitch, with one end partly knocked out, had been lying in the yard exposed to the sun for some months, and a part of it had run out on the ground.

My late partner, Prof. L. Gordon, visited the wire-rope works one day in August, 1844, and I called his attention to the appearance of the pitch as being a good illustration of Prof. Forbes's theory of glaciers; thereupon he wrote the letter referred to; which is also quoted in Forbes's "Theory of Glaciers," p. 269.

Any sort of pitch, such as that obtained from gas tar, will answer the purpose. If the surface is rubbed over with some white material, the formation of crevasses will be well shown; and if a row of pins are stuck into the pitch about an inch and allowed to project they will soon lose their perpendicularity and thus indicate the movements in the model glacier. The rapidity of flow of course varies with the temperature.

I had a curious illustration of the power of plants in forcing their way through resisting materials. I had covered the ground with about two inches of asphalt, and a dandelion pushed its flower and leaves through this viscous mass.

Ferndene, December 28, 1879

R. S. NEWALL

#### Hungarian Earthquakes and the Kolumbács Flies

A NOTE in NATURE, vol. xxi. p. 89, speaking of the recent Hungarian earthquakes, contains, amongst others, the following passage:—"Near Weisskirchen, the old ruins of the Castle of Golubac have fallen in completely, and in the vicinity several caves were rendered inaccessible. These caves were the breeding places of the dreaded Kolumbács mosquitos, and if this insect is thus exterminated the earthquake may, with all the damage it did, have yet been of some use."

This report is based on obvious error, for it is a well-known fact that the small (3-4 millim. long) Kolumbács flies (*Simulium columbaccum*, Fabr.), which, in the southern part of Hungary, especially in the old Banat and the county of Hunyad, cause considerable damage among the pasturing cattle (especially among horned cattle, horses, swine, and sheep), breed by no means in those caves which are to be found around the ancient Galambócz (known nowadays under the name of Golubácz or Kolumbács, on the Servian territory), but in the shallower parts of the waters extending in great quantities in that country. The course of life of the Kolumbács fly is, for the most part, in conformity with that of many families of the Nematocera, or Tipulidae group, as are the Culicidae, many species of flies (Brachycera), the Phryganidae, &c. The mature and fecundated mother-fly lays her eggs upon the plants vegetating on the water-borders, whence they get on the stones under the water, and other objects, there living through their larva and nymph states until they arrive at their full development.

But, in the first years after 1850, under the rule of the Austrian military system of that time, there did occur the curious fact that—upon the advice of a military officer of the frontier-districts, who, as it was supposed, had made out that the breeding-nests of these flies are in the caves around Galambócz, Old Moldavia, and their environs—the Government of Vienna officially decreed the walling up of the openings of the caves. And actually they were walled up. But in the next mild spring, the conditions of development being favourable again, the Kolumbács fly appeared and ravaged once more. The Viennese Government, on learning this unpleasant and disappointing news, hastened to amend the blunder, and sent to the place a Hungarian *savant*, Vincent Kollár, and a German entomologist, Joseph Mann, to take the question under examination. These, in a brief space of time, succeeded in clearing up the true state of things, and in gathering such a series, as contained all the stages of the development of the Kolumbács fly in numerous specimens. This collection is to be seen now in the entomological section of the Naturalien Cabinet of Vienna, grouped in the best order.

The imputation, therefore, as if it were the Hungarians who had walled up the orifices of the caves in the vicinity of Galambócz in order to exterminate the Kolumbács flies by that means—an opinion which, as I, this year, happened to hear at the lecture of an eminent German *savant*, is propagated even in Germany—is entirely erroneous and without any foundation.

Budapest, December 2

JULIUS LETHÖ

#### Unconscious Thought

RESUMING this subject, I again call attention to the circumstance that unconscious thought in children is more developed than conscious thought, though conscious thought or sensation

lays the foundation of what becomes habitual or instinctive. In man, unconscious thought becoming habitual, it is the nursery again of conscious thought, the two conditions in the adult coexisting.

Turning to comparative psychology, a branch which has always appeared to me of particular importance, we find in intelligent animals, as the dog, either in community (commonly called wild) or in the domesticated state, the same nature of mind as in man and the like manifestations. In the young animal, however, there must have been the same precedent stage, though the conscious stage is of course produced earlier than in man.

This raises the question, on which we can speculate, but which we cannot as yet solve, whether some animals are not mostly in the state of unconscious thought, never attaining to that of conscious thought. Looking to the cases of degradation in man, it appears to me that in softening of the brain the man falls back to the unconscious stage, and in some instances remains for some time in it, so that here we get an example of prolongation, it may be called continuance, of the unconscious stage.

Such a state as that of habitual unconscious thought may be regarded as possible and probable, and we are justified in applying it to many animals of inferior nervous organisation. The condition of consciousness being absent, the degree of pain is less, as must be the case in infants. So far from the saying of the master painter of mankind being true that the worm feels as great a pang as when the giant dies, the worm must be less sensitive and less sensible. It is quite possible that the antivivisectionists may be in the wrong as to lower animals, whatever reason they may have as to those like the dog.

There will be at least the like gradations of mind as of form in the animal world, and the difference between an animalcule and a dog will be enormous, and still greater that between the animalcule and man. In the higher stages the differences will be vastly augmented by the agencies at work. Thus it must be that the conscious stage producing precision of action influences the habitual condition of the unconscious stage. Having applied this to man, we may better conceive it, and form some notion of its prodigious relative development by considering how man so constituted has his power of thought enhanced by the great instrument of speech.

These causes contribute to the great differences which I long since pointed out between the rapidity of thought of one man and another, or of the same man at different times of life or under various conditions. My paper "On the Geographical Distribution of Intellectual Faculties in England," following one at the British Association, being published in the *Journal* of the Statistical Society (June, 1871, p. 357), has escaped the notice of psychologists and physiologists, being esteemed statistical, whereas it is also psychological. At p. 357 I gave an account of an experiment, showing a fluctuation in conscious thought in one adult of from 1 to 4, or 100 to 400, denoting an enormous difference, and illustrative of the variations in mental power which exist in society. If, however, we were to estimate a child of 14 at 50, then the ratio would be as 1 to 8. If we take a child of 7 at the quarter of an adult, then we should have 1 to 16. These are not extreme measures, for in the babe we may find 1 to 100, 1 to 200, 1 to 400.

This is given as an illustration of what must exist in the animal world as to conscious thought, and that without reference to unconscious thought, which must be the condition of many classes. Physiologically the subject has been treated by many physiologists, and notably most admirably by Dr. Carpenter; but here the psychological aspect in the special forms indicated is alone brought into prominence.

The phenomena of unconscious thought, indeed, require much greater attention. Not only do they underlie the distinctions between animals and between animals and man, but they must be taken into consideration as explanatory of dreams and of many forms of mental disease. This has been partly dealt with by Dr. Carpenter.

While the later steps of dreams, the visible and pictorial stages, are greatly under the influence of conscious thought, the early stages are under the influence of unconscious thought. It appears to me quite possible that unconscious thought is not altogether latent in sleep. It is worthy of consideration what is the condition of a wakeful animal, say a dog—whether it is one succession of dreams or a form like delirium.

The recurrence of an error once implanted in the mind, notwithstanding our efforts to eliminate or counteract it, is probably

due to the tenacious resistance of unconscious thought, storing up and reproducing the error.

Heredity of thought, whether as dealt with by Mr. Francis Galton or by myself in the paper quoted at p. 359, &c., may be assigned chiefly to the transmission of the habits of unconscious thought, if we consider more especially the condition of the lower animals.

As my last communication was mentioned in the *Daily Telegraph* of November 29, and with the assertion that Dr. Carpenter, Mr. C. T. Munro, and myself have provided in unconscious thought a new plea for unaccountability for criminal actions, it is well to remark that the phenomena discussed have no such bearing.

HYDE CLARKE

December 20, 1879

#### Stags' Horns

THE disappearance of the antlers of stags, in the Highlands and elsewhere, is to be accounted for by the fact that they are saleable articles; but although they do not assist as *entremets* at the animal's meal it may happen that they assist—in the form of knife-handles—in the distribution of his venison at our dinners.

When a lad I obtained many antlers of the Fallow Deer from a neighbouring park, the tines of which were sometimes broken but never gnawed or polished by licking.

It would scarcely be surprising that deer should crave for calcareous matter during the rapid development of their antlers, but neither are their tongues adapted for rasping nor their teeth for comminuting hard bones.

PAUL HENRY STOKOE

Beddington Park

No gillie that I know of has the honour of my acquaintance, and therefore no gillie can know, save indirectly, that I have picked up a horn of the red deer, in a park near Sheffield! I was told at the time by the gardener who accompanied me that these horns were eagerly sought after by the Sheffield knife-makers for the purpose of making bucks' horn knife-handles.

M. T. M.

#### A Query

I HAVE seen somewhere (but I am unable to say where) a statement to the effect that there is some evidence for the supposition that in the crystallising state of matter the forces between molecule and molecule are not directed in the right lines joining the molecules. Can any of your readers throw light on this subject, or give references to sources of information about any other case in which the mutual action of two molecules is not directed in the line joining them?

IGNORAMUS

#### THE ASSERTED ARTIFICIAL PRODUCTION OF THE DIAMOND

PROF. MASKELYNE sends us the following letter on this subject:—

I should be obliged if you would accord me space in one of your columns in order that I may answer a great number of letters and applications which have pursued me during the past few days on a subject of some little public interest, that subject being the asserted formation of diamonds by a gentleman at Glasgow.

Some ten days ago I had heard nothing whatever of the claim of Mr. Mactear, of the St. Rollox Works, Glasgow, to the artificial production of the diamond.

My name, however, was already in several newspapers as that of a person in whose hands the asserted diamonds had been placed for a decision as to their true nature. Ultimately a small watch-glass with a few microscopic crystalline particles came into my hands for this purpose from Mr. Warington Smyth, and subsequently a supply came to me direct from Mr. Mactear. I shall proceed to state the results I have obtained from the examination of these.

Out of the first supply I selected by far the largest particle, one about the  $\frac{1}{50}$ th of an inch in length, and it may be that I wasted some time in experimenting on this particle, as it might not have been an authentic example